"the perfect fly appears early in June, lives but a short time, deposits its eggs and dies." The remainder of Mr. Say's history must apply to that species which has been so frequently observed to deposit its eggs on the leaf."

A letter was read by the Corresponding Secretary from Major James D. Graham, U. S. A., dated July 30, 1841, tendering his acknowledgments for his election as a corresponding member of the Academy.

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## STATED MEETING, August 17, 1841.

Vice President Morton in the Chair.

### DONATIONS TO LIBRARY.

Gardener's Dictionary. By Philip Miller, F. R. S., F. A. 7th edition. Fol. London, 1759. From Mr. Phillips.

Report of the Secretary of War in reference to the construction of the Potomac Aqueduct. 8vo. Washington, 1841. From Col. Abert.

Written Communication.—A lettter was read from Owen Mason, Esq., of Providence, Rhode Island, acknowledging his election as corresponding member of the Society.

Dr. Morton (Dr. Coates taking the chair) made some remarks on the sutures of the cranium as connected with the growth of the corresponding bones.

He adverted to the opinion long in vogue, that the chief use of the sutures was to facilitate the process of parturition; a theory which is refuted by the fact that they exist in the skulls of all the ovipar-

ous animals as strongly marked as in those of the viviparous class. That they give a certain increased facility to parturition is unquestionably true; but their more uniform function is to subserve the growth of bones, which they do by osseous deposition at their margins; hence a suture in the cranium is equivalent to the surface which intervenes between the shaft and epiphysis of a long bone. The latter grows in length by deposition at its extremities, and the epiphysis disappears, like the suture of the cranium, when the growth of the bone is completed.

Dr. Morton illustrated these views by means of the skull of a mulatto boy who died when about eighteen years of age. In this instance the sagittal suture is entirely wanting; in consequence of which the lateral growth of the cranium has ceased in early infancy, (no doubt when the suture became consolidated,) so that the diameter between the parietal protuberances is less than 4.5 inches, instead of 5, which is about the negro average. The squamous sutures, however, are fully open, whence the skull has continued to expand in the upward direction until it has reached the full vertical diameter of the negro, viz., 5.5 inches. The coronal suture is also wanting, excepting some traces at its lower or lateral extremities. The result of this deficiency is seen in the very inadequate developement of the forehead, which is low and narrow, but elongated below by means of the various craniofacial sutures. The lambdoidal suture is complete, thus permitting of posterior elongation; and the growth in this direction, together with the great vertical diameter already mentioned, has allowed the brain to attain the bulk of seventy-seven cubic inches, or six or eight inches short of the negro average.

The growth of the brain and that of the skull are of course consentaneous; nor is it probable, that either could be developed without the sutures: hence there is reason to believe that the absence of these may be a cause of idiocy, by preventing the growth of the brain, and thus impairing or destroying its functions.

Dr. Coates inclined to the opinion that, in cases similar to those presented by Dr. Morton, the disappearance of the sutures was rather to be regarded as a consequence than a cause; and took place, as in old age, because the necessity for further extension of

growth no longer existed, from the final cessation of enlargement in the brain. Uniting with Dr. Morton in the belief that the office of the sutures was to permit a more rapid development and growth of the cranium, by allowing ossification to go on from several centres at the same time, the bones of the skull, in this respect, resembling the trunk and epiphyses of a long bone, Dr. Coates inclined, at the same time, to the double belief that growth and other changes took place, not at the sutures only, but throughout the whole extent of a living cranial bone. The parietal bone of a newly born infant was not mathematically of the same shape with the central portion of that of an adult. Were the brain, in one of the cases referred to by Dr. Morton, to acquire, by any means, a further enlargement, it ought to be presumed, in the present state of our physiological knowledge, that the bone would enlarge to a corresponding extent; and it would be therefore, inferred that the ossification of the sutures would not limit the growth of the brain.

This view Dr. Coates endeavoured to illustrate by a comparison with the opinion of Mr. Serres, that the relative and successive growth of the parts of the brain were a *consequence* of the relative size of their arteries during the period of formation; in regard to which, he believed, physiologists were much agreed in the conclusion that the developement of a portion of the brain and of its corresponding artery were coetaneous processes; but that if any priority in causation were to be allowed, it should be assigned to the organ; in consequence of the existence and comparative size in outline of which, it became necessary, if the ability of the system permitted, that a proportionate supply of blood should be furnished to the part, through a vessel of a suitable size, in order to afford new materials for enlargement. Primary growth, he imagined, took place in the interstitial substance, and that the larger arterial branches, and even the capillaries were rather an instrument or adjuvant than a cause. The formation of additions to existing solids would thus resemble that of the primordia of the fœtus, near which no vessels of the parent are observed, while the vascular appearances are found to approach the newly organized individual at a period subsequent to its formation.

Dr. Coates called the attention of the Academy to the whiteness, thinness, and semi-transparency of the specimen exhibited by Dr. Morton, in all the lines usually exhibiting the sutures. This he considered, not only as indicating the previous existence of real sutures, but as corresponding with the views entertained, by some late comparative anatomists, in regard to the analogy of parts. He alluded to those who believe the analogous parts in animal formations to exist to a very great extent indeed, although composed of very diversified materials, and adapted to very different purposes in the various beings in which they exist.

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## ORDINARY MEETING, August 24, 1841.

Vice President Morton in the Chair.

### DONATIONS TO CABINET.

The Society received from the estate of the late William Maclure, through the hands of his brother and executor Alexander Maclure, a five feet Achromatic telescope, 3¼ inches in the aperture, with two terrestrial and two celestial eye-pieces, adjusting screw, &c. It bears the maker's name, —"Lerebours, Quai de l'Horloge, à Paris."

To the Collection of Shells: Voluta pallida, Conus geographicus, Turbinella craticulata. From Mr. Draper.

Bulimus multicolor (Rang) Brazil; and a Helix, probably nondescript, from the Bonin Islands. From Dr. Ruschenberger.

To the Mineralogical Collection: Fine specimens of laminated Selenite, lamellar Sulphate of Strontian and Dog-tooth Spar, from Lockport, N. York. Also, Specular Iron, two specimens, doubly refracting Spar, and a gigantic crystal of Calcareous Spar,—a hexaedron with truncated angles, and weighing 27 lbs.; from Rossie, New York. All presented by Mr. Ashmead.